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TECHNICAL ASPECTS OF VOA LISTENING IN THE SOVIET UNION

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TECHNICAL ASPECTS OF VOA LISTENING IN THE SOVIET UNION

Abstract

This report discusses VOA audibility, the severity and frequency with which VOA broadcasts are jammed, time listening begins, meter bands and language services monitored by listeners to VOA in the Soviet Union.

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R-5-78

February 22, 1978

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R-5-78 February 22, 1978

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TABLE OF CONTENTS

Summary i

Technical Aspects of VOA Listening in the Soviet Union 1

- Audibility 1
- Jamming Severity 2
- Jamming Frequency 3
- Time Listening Begins 4
- Meter Bands 6
- Language Services 7

Methodological Appendix 9

- Audience Research in the Soviet Union 9
- The Sample 9
- Geographic Areas in the USSR 10

List of Tables

Table		
1	Audibility	1
2	Audibility by Geographic Area	2
3	Jamming Severity	2
4	Jamming Severity by Geographic Area	3
5	Jamming Frequency	3
6	Jamming Frequency by Geographic Area	4
7	Time Listening Begins	4
8	Time Listening Begins by Geographic Area	5
9	Meter Band	6
10	Meter Band by Geographic Area	6
11	Language Services	7
12	Language Services by Geographic Area	8
A.1	Sample Distribution by Geographic Area	11

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SUMMARY

This report describes technical aspects of VOA listening in the Soviet Union (i.e., audibility, jamming severity, jamming frequency, time listening begins, meter bands on which VOA is monitored, language services) as reported by 1200 present or former Soviet citizens who were interviewed outside of the Soviet Union in 1975. These were drawn from some 1600 interviews conducted for Radio Liberty's audience research division. All of the respondents indicated that they listened to VOA; therefore, the data cannot be used to estimate the proportion of the parent population that listens to VOA. In this report, the term "sample" refers only to those persons who offered a response on a given subject, not necessarily to all 1200.

Overall, audibility was "good" for 58.5 per cent of the audibility sample, "poor" or "very poor" for an additional 6.2 per cent. It was best in the Caucasus area of the USSR, worst in Central Asia. At least some jamming was reported by about half of the jamming sample, the most occurring in the Ukraine and Moldavia area, the least in the eastern regions of the Soviet Union. Six point eight per cent (6.8%) of the respondents claimed that they experienced "much" or "very much" jamming. Frequency of jamming was said to be "intermittent" by 44.5 per cent of the sample, "always" by 6.9 per cent. As with jamming severity, jamming frequency was reported as most pronounced in the Ukraine and Moldavia area. The interviews did not discriminate among the types of interference which could have been taken (or mistaken) for jamming.

VOA listeners generally began their listening sessions in the late afternoon or early evening, with most beginning about 8 PM local time. By far the bulk of listening was concentrated in the evening prime time hours from 6 PM to midnight. Few new listeners were acquired after 11 PM. The meter bands most popular with VOA listeners in the Soviet Union were 25 and 31 meters. Least popular was the 16 meter band. The great majority of the sample (95.5%) listened to at least some programs in Russian. On the average, 14.7 per cent also listened to the English service, but the proportion rose sharply (to 23.3%) in the European RSFSR.

An accompanying report using the same data base but concentrating on attitudes toward VOA programming contains a full discussion of the data-gathering techniques and methodological problems associated with the approach to program evaluation used in this report. The reader is referred to that report for more detail on these matters. Both reports were prepared by James P. McGregor, East European Analyst, Foreign Information Research Division, Office of Research.

TECHNICAL CHARACTERISTICS OF VOA LISTENING IN THE SOVIET UNION

This report presents the range of responses to certain technical questions on VOA listening in the Soviet Union. The variables to be examined will be audibility, severity of jamming, frequency of jamming, time listening begins, meter bands on which the respondents listen to VOA, and language service monitored. The method of presentation will be to display and discuss the overall distributions for the entire Soviet Union and the distributions broken down by the geographic areas defined in the Methodological Appendix. In the discussion the term "sample" refers only to those persons who responded to an item (the response rate was nine in ten or higher, and not to all 1200 persons.

Audibility

Most respondents in the sample audibility sample reported reception to be good (see Table 1). Very few said that reception is poor or very poor.

Table 1: Audibility

Audibility	N	%*
Very Poor	4	.3
Poor	69	5.9
Fair	413	35.2
Good	686	58.5
Very Good	-	-
Total	1172	100.0

* "%" = Percentages are calculated on the basis of those who responded to the item, not as a proportion of the total number of persons in the analysis (1200).

Overall, the best reception appeared to occur in the Caucasus (area 4) where 74.8 per cent of the respondents from this area reported good reception and only 3 per cent indicated that reception is poor or very poor (see Table 2). The worst reception (excluding area 8 which had only one person resident there) was found in Central Asia (area 6). Here 56 per cent of the area residents stated that reception is good, while 24 per cent complained of poor reception. Note that the relatively small number of respondents in Central Asia reduces the statistical significance of this finding.

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Audibility	**Area***							
	1	2	3	4	5	6	7	8
Very Poor	1 (0.2)**	- -	2 (0.5)	1 (1.0)	- -	- -	- -	- -
Poor	32 (6.2)	5 (3.0)	17 (4.6)	2 (1.9)	1 (3.8)	6 (24.0)	1 (4.3)	1 (100.0)
Fair	196 (38.1)	64 (38.1)	127 (34.3)	23 (22.3)	9 (34.6)	5 (20.0)	3 (13.0)	- -
Good	285 (55.4)	99 (58.9)	224 (60.5)	77 (74.8)	16 (61.5)	14 (56.0)	19 (82.6)	- -
Total	514 (100.0)	168 (100.0)	370 (100.0)	103 (100.0)	26 (100.0)	25 (100.0)	23 (100.0)	1 (100.0)

*"Area" - See Figure 1 (p. 12) and accompanying text for definition of areas.

**Percentages are calculated on the basis of those who responded to the item, not as a proportion of the total number of persons in a given area.

Jamming Severity[1]

Fully half of the jamming sample reported at least some jamming (see Table 3).

Table 3: Reported Jamming Severity

Severity	**N**	**%***
None	544	49.5
Some	480	43.7
Much	20	1.8
Very Much	55	5.0
Total	1099	100.0

*"%" - Percentages are calculated on the basis of those who responded to the item, not as a proportion of the total number of persons in the analysis (1200).

The western regions of the Soviet Union appear to experience the most jamming both relatively and absolutely (see Table 4). The Ukraine and Moldavia (area 3) report the greatest amount of jamming, with almost 60 per cent of its residents experiencing at least some jamming and 10 per cent of the total stating that jamming is severe or very severe. The farther south and east one resides, according to Table 4, the less jamming is encountered. Only 2 persons of 23 (8.7%) living in Western Siberia, for example, complained of jamming.

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[1] Tables 3 through 6 are especially interesting because jamming of VOA was officially halted by the Soviet government in September 1973, and there is no evidence that it has been resumed. Although Radio Liberty audience research division personnel state that in their interviews they ask respondents about intentional jamming, the jamming reported in the tables must be attributed to a combination of factors including the difficulty of tuning shortwave receivers, atmospheric interference, accidental interference (i.e., spillover from an adjacent local station onto a VOA frequency), splatter (i.e., interference from signals used to jam other radio broadcasts such as RL or Deutsche Welle), or confusion of VOA with RL or another station. Whatever the reason, Tables 3 through 6 indicate some interference with VOA signals.

Table 4: Reported Jamming Severity by Geographic Area

Severity	Area 1	 2	 3	 4	 5	 6	 7	 8
None	227 (48.7)	81 (51.6)	147 (40.6)	61 (60.4)	16 (61.5)	12 (63.2)	21 (91.3)	- -
Some	204 (43.8)	67 (42.7)	176 (48.6)	38 (37.6)	10 (38.5)	7 (36.8)	2 (8.7)	1 (100.0)
Much	9 (1.9)	3 (1.9)	11 (3.0)	- -	- -	- -	- -	- -
Very Much	26 (5.6)	6 (3.8)	28 (7.7)	2 (2.0)	- -	- -	- -	- -
Total	466	157	362	101	26	19	23	1

Jamming Frequency

As could be expected, about half the sample stated that jamming never occured, while relatively few (6.9%) claimed constant interference (see Tables 5 and 6). The rest of the sample (44.9%) reported intermittant jamming. Table 6 shows that the signal in the Ukraine and Moldavia (area 3) was jammed most often and most severely (8.5 per cent claim constant jamming compared to the overall sample norm of 6.9 per cent). Farther east, the frequency of jamming declined.

Table 5: Frequency of Reported Jamming

Frequency	N	%
Never	543	48.1
Intermittant	507	44.9
Always	78	6.9
Total	1128	100.0

Table 6: Frequency of Reported Jamming by Geographic Area

Frequency	Area 1	2	3	4	5	6	7	8
Never	226 (46.5)	81 (50.6)	147 (40.3)	61 (59.2)	16 (61.5)	12 (54.5)	21 (91.3)	- -
Intermittant	226 (46.5)	70 (43.8)	187 (51.2)	36 (35.0)	10 (38.5)	10 (45.5)	1 (4.3)	1 (100.0)
Always	34 (7.0)	9 (5.6)	31 (8.5)	6 (5.8)	- -	- -	1 (4.3)	- -
Total	486	160	365	103	26	22	23	1

Jamming frequency was not entirely independent of jamming severity because those who state that no jamming occurs (Tables 3 and 4) must also report that it never occurs. Beyond that, however, jamming may vary in frequency within levels of severity.

Time Listening Begins

Tables 7 and 8 report the time at which the respondents customarily began listening to VOA broadcasts. Times are local. The most popular listening times for the sample began in the late afernoon or early evening and peaked at 2000 hours when 21 per cent of the sample began listening. The largest part of the sample by far (85%) listened only in the prime time evening hours from 1800 to 2400 hours. New listening began dropping off sharply at 2300 hours and decreased to 3.4 per cent by midnight. It should be noted that this does not necessarily mean that people have ceased listening by midnight, but rather that few people began their listening after this hour. Table 8 does not reveal any striking deviations from the overall pattern of Table 7.

Table 7: Time Listening Begins

Time (local)	N	%
0200 Hours	14	1.3
0630 Hours	1	0.1
0700 Hours	37	3.5
0800 Hours	7	0.7
1000 Hours	9	0.9
1200 Hours	13	1.2
1500 Hours	1	0.1
1600 Hours	33	3.1
1700 Hours	46	4.4
1800 Hours	80	7.6
1900 Hours	119	11.3
2000 Hours	221	21.0
2100 Hours	198	18.8
2200 Hours	162	15.4
2300 Hours	75	7.1
2400 Hours	36	3.4
Total	1052	100.0

Table 8: Time Listening Begins by Geographic Area

Time (local)	Area 1	 2	 3	 4	 5	 6	 7	 8
0200 Hours	5 (1.1)	2 (1.4)	4 (1.1)	1 (1.1)	1 (4.5)	- -	1 (5.9)	- -
0630 Hours	- -	1 (0.7)	- -	- -	- -	- -	- -	- -
0700 Hours	18 (3.9)	8 (5.4)	11 (3.1)	3 (3.4)	- -	- -	- -	- -
0800 Hours	3 (0.7)	- -	4 (1.1)	- -	- -	1 (5.0)	- -	- -
1000 Hours	2 (0.4)	2 (1.4)	3 (0.8)	2 (2.3)	- -	1 (5.0)	- -	- -
1200 Hours	10 (2.2)	1 (0.7)	6 (1.7)	- -	- -	- -	- -	- -
1500 Hours	- -	1 (0.7)	- -	- -	- -	- -	- -	- -
1600 Hours	19 (4.1)	3 (2.0)	10 (2.8)	3 (3.4)	1 (4.5)	2 (10.0)	- -	- -
1700 Hours	23 (5.0)	7 (4.8)	14 (3.9)	2 (2.3)	- -	1 (5.0)	- -	- -
1800 Hours	46 (10.0)	17 (11.6)	18 (5.1)	2 (2.3)	2 (9.1)	2 (10.0)	- -	- -
1900 Hours	53 (11.5)	19 (12.9)	35 (9.9)	9 (10.2)	- -	3 (15.0)	- -	- -
2000 Hours	81 (17.6)	31 (21.1)	88 (24.8)	24 (27.3)	5 (22.7)	4 (20.0)	4 (23.5)	- -
2100 Hours	77 (16.7)	24 (16.3)	69 (19.4)	24 (27.3)	9 (40.9)	2 (10.0)	4 (23.5)	- -
2200 Hours	64 (13.9)	18 (12.2)	63 (17.7)	12 (13.6)	3 (13.6)	3 (15.0)	4 (23.5)	- -
2300 Hours	37 (8.0)	8 (5.4)	23 (6.5)	3 (3.4)	1 (4.5)	1 (5.0)	2 (11.8)	1 (100.0)
2400 Hours	22 (4.8)	5 (3.4)	7 (2.0)	3 (3.4)	- -	- -	2 (11.8)	- -
Total	460	147	355	88	22	20	17	1

Meter Bands

Tables 9 and 10 give the sample distribution on the meter band on which VOA is heard. These tables differ from those reported above in that the respondent was given the option of stating that he listened on several bands. The individual cell frequencies and percentages are therefore based on the total sample, and may be expected to sum to well over 100 per cent because of double-counting. The row labelled "Total" at the foot of Table 10 is intended to show the base on which the cell percentages are calculated, not the column totals.

Table 9: Meter Band

Meter Band	N	%
16	45	3.7
19	127	10.6
25	456	38.0
31	454	37.8
41	373	31.1
49	240	20.0

Table 10: Meter Band by Geographic Area

Meter Band	Area							
	1	2	3	4	5	6	7	8
16 Meters	30 (5.6)	5 (2.9)	7 (1.9)	4 (3.8)	2 (7.7)	- -	1 (4.3)	- -
19 Meters	74 (13.9)	18 (10.6)	31 (8.2)	10 (9.5)	2 (7.7)	1 (3.8)	1 (4.3)	- -
25 Meters	217 (40.8)	64 (37.6)	167 (44.3)	35 (33.3)	6 (23.1)	4 (15.4)	3 (13.0)	1 (100.0)
31 Meters	216 (40.6)	68 (40.0)	166 (44.0)	31 (29.5)	4 (15.4)	5 (19.2)	2 (8.7)	1 (100.0)
41 Meters	177 (33.3)	55 (32.4)	141 (37.4)	24 (22.9)	3 (11.5)	3 (11.5)	- -	1 (100.0)
49 Meters	124 (23.3)	34 (20.0)	86 (22.8)	11 (10.5)	- -	1 (3.8)	1 (4.3)	- -
Total[1]	532	170	377	105	26	26	23	1

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[1] "Total" in the case of this and other area tables represent the number of persons resident in a given area and forms the base for the calculation of percentages. Missing data may reduce the number of persons actually responding and account for some "totals" being larger than the number of persons in the distribution, even under a system of double counting.

Table 9 indicates that in the total sample the 25 and 31 meter bands were the most popular with 38 per cent and 37.8 per cent of the respondents. Least popular were the bands on the extremes, the 16 meter band (3.7%) and the 49 meter band (20.0%). In general, these same patterns hold when the sample is broken down by geographic area.

Language Services

Tables 11 and 12 present the sample distributions according to the language service to which the respondents reported listening. As in Tables 9 and 10, double-counting is possible because individuals might listen to more than one service. For this reason the columns of the tables sum to more than 100 per cent.

Table 11: Language Services Monitored

Language	N	%
Arabic	1	.1
Armenian	4	.3
Chinese	1	.1
English	176	14.7
Estonian	15	1.2
Georgian	9	.7
Latvian	8	.7
Lithuanian	8	.7
Romanian	2	.2
Russian	1146	95.5
Tadzhik	1	.1
Ukrainian	36	3.0
Uzbek	6	.5

As can be seen from Table 11, Russian was by far the most popular language, with 95.5 per cent of the respondents stating that they listened to at least some broadcasts in this language. A distant second was the English service to which 14.7 per cent of the sample listens.[1] From this point the proportions of listeners to the various services ranked roughly in the order of the number of their nationals in the sample. These patterns vary slightly when the sample is distributed by geographic area. However, as shown in Table 12 Russian remains the predominant language in all areas, but -- as could be expected -- the individual services such as the Estonian or Uzbek services captured a greater proportion of their audiences within the areas where their nationals resided.

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[1] 75.6 per cent of the listeners in English are non-emigrants. See Listening Habits of Soviet Citizens to the Voice of America for emigrant/non-emigrant breakdown on other variables.

An interesting feature of Table 12 is the relative popularity of the English-language broadcasts in the European RSFSR (area 1). Here 23.3 per cent of the respondents -- well above the sample norm of 14.7 per cent for the country as a whole -- reported listening to the English service.

Table 12: Languages by Geographic Area

Language	Area* 1	2	3	4	5	6	7	8
Arabic	1 (0.2)**	- -	- -	- -	- -	- -	- -	- -
Armenian	- -	- -	- -	4 (3.8)	- -	- -	- -	- -
Chinese	1 (0.2)	- -	- -	- -	- -	- -	- -	- -
English	124 (23.3)	23 (13.5)	23 (6.1)	4 (3.8)	2 (7.1)	3 (11.5)	- -	- -
Estonian	- -	15 (8.8)	- -	- -	- -	- -	- -	- -
Georgian	1 (0.2)	- -	- -	7 (6.7)	- -	- -	- -	- -
Lativian	- -	8 (4.7)	- -	- -	- -	- -	- -	- -
Lithuanian	- -	8 (4.7)	- -	- -	- -	- -	- -	- -
Romanian	- -	- -	2 (0.5)	- -	- -	- -	- -	- -
Russian	519 (97.6)	143 (84.1)	369 (97.9)	101 (96.2)	26 (100.0)	25 (96.2)	22 (95.7)	1 (100.0)
Tadzhik	- -	- -	1 (0.3)	- -	- -	- -	- -	- -
Ukrainian	12 (2.3)	1 (0.6)	29 (7.7)	- -	- -	- -	- -	- -
Uzbek	1 (0.2)	- -	- -	- -	- -	2 (7.7)	- -	- -
Total	532	170	377	105	26	26	23	1

METHODOLOGICAL APPENDIX

AUDIENCE RESEARCH IN THE SOVIET UNION

A considerable portion of the Voice of America's (VOA) budget is devoted to programming for the USSR. Determining the effectiveness with which these resources are expended is severely hampered by the Agency's inability to conduct surveys in the USSR which would assess attitudes toward VOA programming (e.g., whether listeners like or dislike what they hear) or to gather information on technical aspects of VOA listening (e.g., audibility). Thus the Agency must resort to information sources which may be less reliable than the usual standard its studies, but which in the absence of alternatives must be exploited. This report of technical aspects of VOA listening in the Soviet Union is based on one of these alternate data sources, in this case on reports from present or former Soviet citizens on their VOA listening habits which were gathered when these individuals were outside the Soviet Union.

The Sample

The data used for this report were supplied to the Office of Research by Radio Liberty's audience research division. Data from 1200 present and former Soviet citizens were coded according to a system devised by the Office of Research. The data are from 1975.

Due to the exigencies of gathering data under the conditions in which it was done, the sample of persons used for this report is not representative of the larger Soviet population, at least with respect to certain demographic characteristics. For example, males outnumber females in the sample by almost three to one, while in the Soviet population (according to the 1970 census), females slightly outnumber males. With respect to the nationality of the respondents, the greatest proportion of the sample is composed of Jews (53%); their actual numbers in the total population is reported to be only .9 per cent, again according to the 1970 census.

But representativeness is a sample characteristic which is more important for some purposes than for others. If one is interested in attitudes, for example, then it becomes necessary that the sample be highly representative of the parent population if one wishes to project the sample characteristics to the larger population. On the other hand, there are questions for which representativeness is essentially irrelevant, such as the audibility of a station or the amount and frequency of jamming encountered. This report is concerned largely with questions of this latter type: audibility, amount and frequency of jamming, time listening begins, meter bands on which respondents monitor VOA, and the language services listened to. What is important for these questions is not representativeness, but whether a sufficient number of persons gave answers to these items to result in statistically significant distributions.

The methods of gathering the data used for this report and the issue of representativeness are treated more extensively in the accompanying report on listening habits and attitudes of Soviet citizens toward VOA programming.[1] The reader is referred to this report for further discussion of these matters.

Geographic Areas in the USSR

The USSR is a huge country, covering something close to one-sixth of the world's land surface. The implication of this is that while examining the overall distributions on the variables to be reported below would be interesting, it might also be potentially misleading. There is no particular reason to expect, for example, that listening conditions prevalent in the European regions of the USSR will be replicated in the Soviet Far East thousands of miles away.

One approach to this problem is to divide the USSR into distinct geographic areas, and to examine the distribution of responses within the geographic divisions as well as for the Soviet Union as a whole. This would serve the purpose of gaining an overall picture of variables under examination while at the same time pointing up peculiarities in the distributions which may result from the particular location of listeners in the Soviet Union. Such an approach is, of course, only a partial solution because even dividing the Soviet Union into, say, ten sections still means that very large expanses of territory are contained within each region. This approach does, however, result in some improvement in the interpretability of the distributions.

For the purposes of this report, the USSR has been divided into eight general geographic areas which coincide roughly with the following natural geographic regions:

1. European RSFSR
2. Baltics
3. Ukraine and Moldavia
4. Caucasus
5. Urals
6. Central Asia
7. Western Siberia
8. Eastern Siberia and the Far East

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[1] See Office of Research Report R-5-78, Listening Habits of Soviet Citizens to the Voice of America, February 22, 1978.

Geographic divisions were made on the basis of suggestions from the engineering division of VOA (IBS/E). Figure 1 illustrates the division on a map of the USSR. Notations to Figure 1 give latitude and longitude coordinates for each area, plus some representative cities located in each. Regions will be referred to throughout the remainder of this report by the numbers indicated on Figure 1.

Relatively few persons were eliminated by these coordinates or were unable to be located because they did not reveal where they resided (only 26 out of the 1200 respondents are not included in the geographic divisions). Those who were excluded because of falling outside the boundaries of the eight areas were found mostly in the Turkmen, Uzbek, and Tadzhik SSR's of Central Asia and the Primorskiy Kray and Yevreyskaya Autonomous Oblast in the Far East.

There is one area of overlap in the geographic divisions shown in Figure 1. This occurs in area 3, the Ukraine and Moldavia, which overlaps parts of the southern portions of areas 1 and 2 (regions 1 and 2 are mutually exclusive), and which is shaded by hash marks on Figure 1. Because of this overlap, the totals in Table A.1 (below) and the tables elsewhere sum to slightly more than 1176 (the number of persons in the sample who disclosed their place of residence and who were included in the eight geographic divisions).

Table A.1 gives the number of respondents falling into each area. As can be seen from Table A.1, most persons in the sample are located in the west, in regions 1, 2, 3, and 4. Only one person is found in area 8, Eastern Siberia and the Far East, this in the southwest corner of area 8 in the city of Chita. The relatively few respondents living in areas 5 through 8 means that distributions of variables for these regions will be less significant in a statistical sense than in the west of the Soviet Union, and that greater care must be used to avoid any assumption that the findings from these areas are necessarily typical of all VOA listening in the area.

Table A.1: Sample Distribution by Geographic Area

Area	N*	%
1. European RSFSR	532	45.2
2. Baltics	170	14.5
3. Ukraine and Moldavia**	377	32.1
4. Caucasus	105	8.9
5. Urals	26	2.2
6. Central Asia	26	2.2
7. Western Siberia	23	2.0
8. Eastern Siberia and Far East	1	.09

* True sample size is 1176. Total sums to more than 1176 due to double counting in area 3.

** Area 3 overlaps in part with areas 1 and 2.

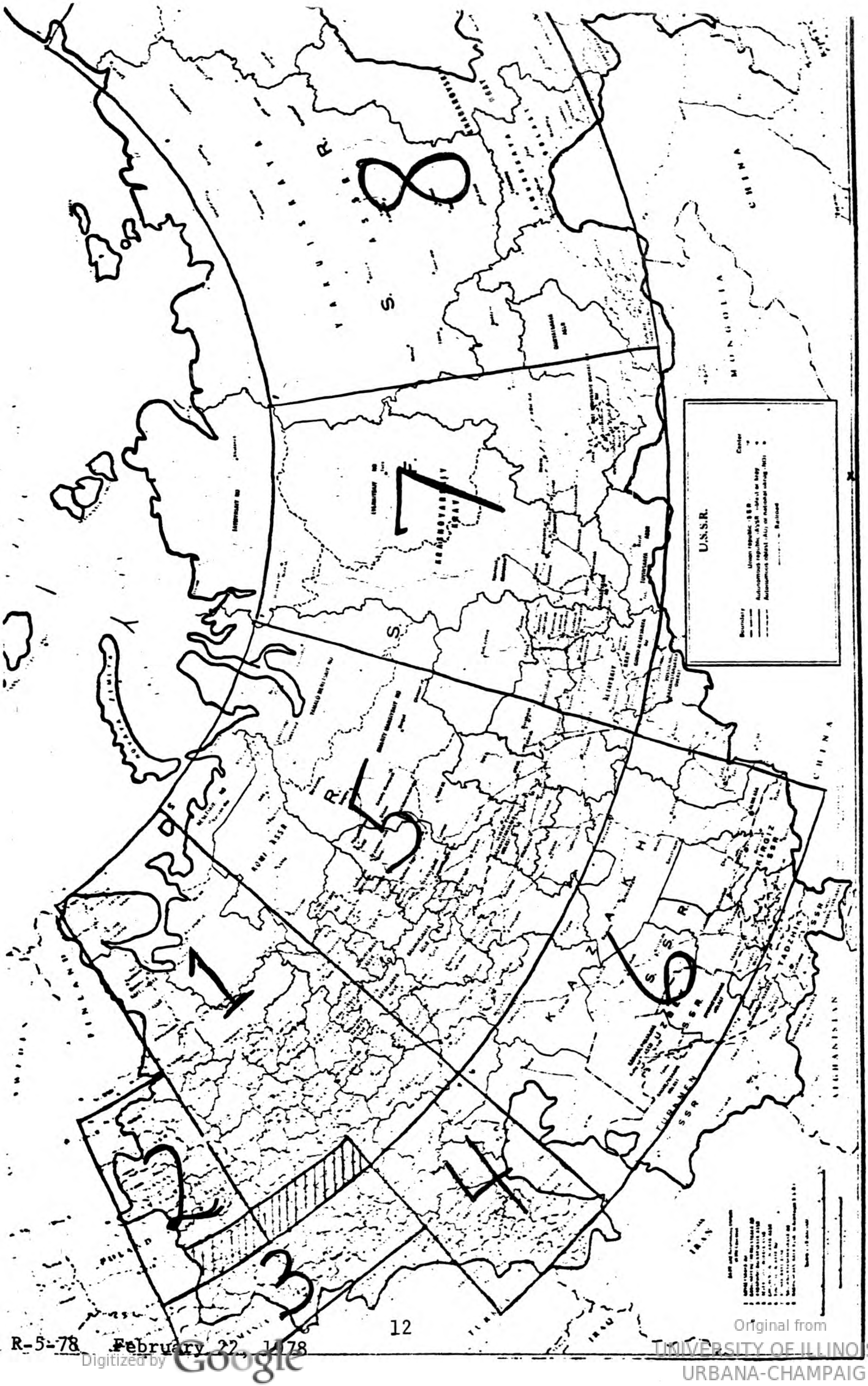

Figure 1: Geographic Areas in the U.S.S.R.

Figure 1 (continued)

Area 1: European R.S.F.S.R.

Latitude and Longitude: 30' E 70' N 50' E 70' N
30' E 50' N 50' E 50' N

Representative Cities: Moscow, Leningrad, Novgorod, Gor'kiy, Saratov, Kazan, Kiev, Kursk, Voronezh

Area 2: Baltics

Latitude and Longitude: 20' E 60' N 30' E 60' N
20' E 50' N 30' E 50' N

Representative Cities: Tallin, Pskov, Riga, Vilnius, Minsk, Brest

Area 3: Ukraine and Moldavia

Latitude and Longitude: 20' E 52' N 40' E 52' N
20' E 45' N 40' E 45' N

Representative Cities: Kiev, Zhitomir, Orel, Chernigov, Kharkov, Lvov, Uzhgorod, Kishinev, Krivoy Rog, Dnepropetrovsk

Area 4: The Caucasus

Latitude and Longitude: 40' E 50' N 50' E 50' N
40' E 40' N 40' E 40' N

Representative Cities: Volgograd, Stavropol, Astrakhan, Groznyy, Tblisi, Ordzhonikidze, Yerevan, Baku

Area 5: Urals

Latitude and Longitude: 50' E 80' N 80' E 80' N
50' E 50' N 80' E 50' N

Representative Cities: Ukhta, Perm', Sverdlovsk, Ufa, Kuybyshev, Ural'sk, Pavlodar

Figure 1 (continued)

Area 6: Central Asia

Latitude and Longitude: 50' E 50' N 80' E 50' N
50' E 40' N 80' E 40' N

Representative Cities: Gur'yev, Karaganda, Urgench, Tashkent, Frunze, Alma-Ata, Samarkand, Ashkabad

Area 7: Western Siberia

Latitude and Longitude: 80' E 80' N 110' E 80' N
80' E 50' N 110' E 50' N

Representative Cities: Norilsk, Tomsk, Novosibirsk, Barnaul, Krasnoyarsk, Irkutsk

Area 8: Eastern Siberia and Far East

Latitude and Longitude: 110' E 80' N 170' E 70' N
110' E 50' N 170" E 50' N

Representative Cities: Yakutsk, Blagoveschchensk, Magadan, Ust-Kamchatsk, Vladivostok